

PROCEEDINGS
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A REMARKABLE PSEUDOSCORPION FROM THE
HAIR OF A RAT (PSEUDOSCORPIONIDA,
CHERNETIDAE)

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Through the courtesy of Dr. Robert E. Lewis, I received for study a pseudoscorpion from Celebes, collected from the body of a rat by Mr. Gwilym S. Jones. This proved to be a male of an undescribed genus and species belonging to the family Chernetidae. The species is definitely modified for commensal life on a mammal and shows some interesting resemblances to the genus *Pseudochiridium* With. The type-specimen is deposited in the National Museum of Natural History, Smithsonian Institution.

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Chiridiochernes new genus

Diagnosis: Body stout, appendages relatively long. All parts heavily sclerotized; all surfaces strongly granulate except tips of chelal fingers and pedal tibiae and tarsi; most vestitural setae short and truncated or paucidenticulate, but those on chelal fingers and ventral surfaces becoming long and acuminate. Carapace with two very well-developed transverse furrows; eyes absent. Tergites 1-3 entire, 4 and 5 incompletely divided, 6-11 completely divided; sternites 4-11 divided; lateral edges of tergites and sternites turned abruptly ventrally and dorsally, respectively, and tergites broader than sternites, so that tergites and sternites fit together as though they were the top and bottom of a pill box; circumanal plate small, membranous and withdrawn between tergite 11 and sternite 11; pleural membranes thin, longitudinally striate; genital opercula and internal genitalia generally typical of the Chernetidae. Chelicera with three setae in flagellum; hand with five setae, *sb* terminally denticulate,

b apparently acuminate, *ls* unusually heavy; galea with several rami. Palps very stout in dorsal view, but greatly flattened in dorso-ventral direction; femur with large, rounded elevation on medial surface just distad of pedicel, this elevation beset with numerous microsetae; in dorsal view, chela greatly expanded just distad of pedicel, fingers distinctly shorter than hand; a few accessory teeth only on internal surface of fixed finger; movable finger with only three trichobothria, *st* apparently wanting; fixed finger with the normal complement (8) of trichobothria, distributed along the length of finger; movable finger with venedens and small venom duct, fixed finger with prominent terminal tooth but no visible venom duct. Coxa of fourth leg with a unique, conical, posterior projection, extending back to fourth sternite, reminiscent of the posterior extension of the fourth coxa in males of *Pseudochiridium*. Femoral articulations of legs I and II more like those of legs III and IV than in most chernetids, also similar to the situation in *Pseudochiridium*. Basifemora and tibiae of all legs distinctly pedicellate. Fourth tarsus without a tactile seta. Subterminal tarsal setae acuminate, curved near tip. Each tarsus with a prominent slit sensillum near proximal end.

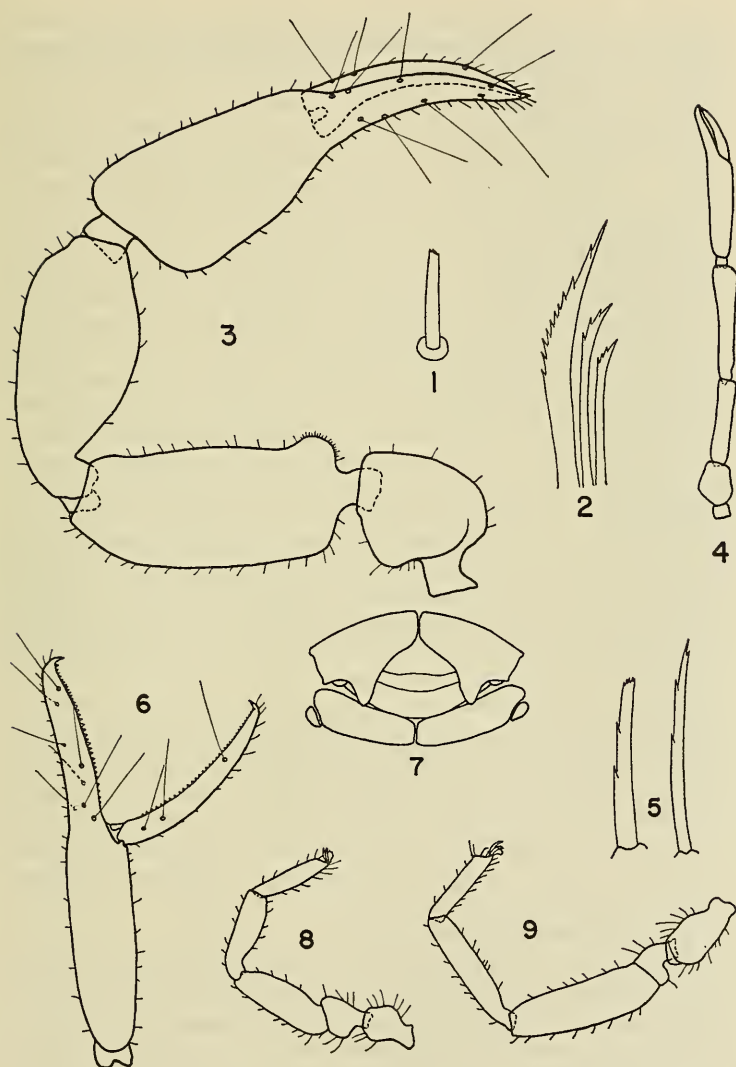
Type-species: *Chiridiochernes platypalpus* new species.

Remarks: The genus *Chiridiochernes* clearly belongs within the family Chernetidae, because of the presence of a venom apparatus in only the movable chelal finger and the details of the genitalia. However, the type-species, at least, is considerably modified for life on the body of its host mammal—the long legs and long, flattened palps certainly facilitate movement among hairs and the capture of prey, while the heavily armored body protects against desiccation and against scratching by the host. In many ways it appears closely related to *Megachernes* from the western Pacific islands and eastern Asia, which is also commonly found on rats but is much less modified for the association. On the other hand, *Chiridiochernes* bears many resemblances to the genus *Pseudochiridium*, circumtropical in distribution, the life habits of which are little known.

***Chiridiochernes platypalpus* new genus and new species**

Material: Holotype male (WM 2363.01001) combed from the fur of a rat (*Rattus penitus*, USNM, #359791) taken at Biroro, at the base of Mt. Lampobathang, south of Melino, Celebes, Indonesia, 29 January 1969, by G. S. Jones.

Description: *Male:* With the overall appearance, as seen from above, of a large pseudochiridiid with trapezoidal carapace, smoothly ovoid abdomen and stout palps, but in detail definitely a chernetid. All parts heavily sclerotized, mostly dark brown but legs lighter. Carapace as long as broad, narrowest at anterior and broadest at posterior border; surface heavily granulate; no eyes evident; with 2 well-developed transverse furrows, the median furrow 0.52 and the posterior furrow



FIGS. 1-9. *Chiridiochernes platypalpus* new species, holotype male. 1. Seta characteristic of those on carapace and anterior tergites. 2. Chelicerel flagellum. 3. Dorsal view of left palp. 4. Lateral view of right palp, showing dorsoventral flattening of the segments. 5. Two setae characteristic of those on palpal femur and tibia. 6. Lateral view of right chela. 7. Ventral view of coxae IV, genital opercula, and sternites 4. 8. Anterior aspect of left leg I. 9. Anterior aspect of left leg IV.

0.825 the length of the carapace from anterior margin; with about 150 setae scattered over surface, 4 at anterior and 22 at posterior margin; dorsal setae (Fig. 1) short and truncated or denticulate at tip, lateral ones becoming longer and acuminate.

Abdomen one-third longer than broad, heavily sclerotized and rigid in form; tergites 1-3 entire, 4 and 5 incompletely and 6-11 completely divided; all sternites, except genital opercula, divided; surfaces of tergites and sternites heavily granulate except for a rounded area in the medial third of each tergal or sternal half where the granules become flattened; lateral edges of tergites and sternites turned abruptly ventrally and dorsally, respectively, and tergites broader than sternites so that top and bottom can fit together like a pill box; circumanal plate membranous and withdrawn between tergite 11 and sternite 11; pleural membranes thin and longitudinally plicate; tergites each with 20-40 and sternites each with about 40 setae in irregular row along posterior and lateral margin; just anterior to the row of setae on each sclerite is an irregular row of small pit sensilla, each on a distinct elevation; anal plate with 4 setae; most vestitural setae lost from specimen, but remaining ones on dorsal surface short and terminally denticulate, on ventral surface long and acuminate. Anterior genital operculum with about 50 setae, the more posterior ones much longer than the anterior ones; posterior operculum with 2 groups of 4 and 5 small setae at middle of anterior edge just inside the aperture, and about 30 setae in marginal row. Anterior spiracular plate not visible under expanded fourth coxa; posterior plate with 4 setae.

Chelicera typical of the Chernetidae, but relatively small. Length less than one-third that of carapace; palm with 5 setae, *sb* dentate near tip, *b* and *es* acuminate, *ls* relatively heavy; fixed finger with 3-4 small teeth; movable finger with prominent subapical lobe; galea typical, with 5 spinules in distal half; serrula exterior with 19 blades; serrula interior with 4 dentate blades and a basal velum; flagellum of 3 setae, the anterior one long, broad and dentate along its distal half, the others shorter and denticulate near tips (Fig. 2).

Palps dorso-ventrally much compressed, broad when viewed from above, but quite thin when viewed from the side, as shown in Figures 3 and 4; femur with large, rounded elevation on medial surface, just distal to pedicel, this elevation beset with about 50 microsetae; in dorsal view chelal hand greatly expanded just distal to pedicel and tapering sharply toward fingers; fingers distinctly shorter than hand. As viewed from above trochanter 1.4, femur (not including basal elevation) 2.75, tibia 2.45, and chela (without pedicel) 3.35 times as long as broad; hand (without pedicel) 3.45 times as long as deep; movable finger 0.84 as long as hand. All surfaces heavily granulate, including chelal fingers, where granules become smaller and more widely spaced; most vestitural setae short and multidenticate (Fig. 5), those on fingers

longer and acuminate. Trichobothria as shown in Figure 6; fixed finger with usual number of 8, but movable finger with only 3, *st* apparently the missing one. Movable finger with venedens and small venom duct, a nodus ramosus not visible in this specimen; terminal tooth of fixed finger prominent but with no evidence of venom duct. Each finger with 36 nearly contiguous, conical marginal teeth; only fixed finger with accessory teeth, 1 small and 3 large, on internal surface.

Coxae of fourth legs expanded and with unique conical, posterior projections extending back to fourth sternite (Fig. 7), reminiscent of similar situation in *Pseudochiridium*. Legs themselves grossly similar to those of *Pseudochiridium* but more attenuated (Figs. 8, 9); basifemora and tibiae of all legs distinctly pedicellate; femoral articulations of legs I and II more like those of legs III and IV than is usual among the Chernetidae, though former are still movable while latter are fixed; fourth tarsus without a tactile seta; "sense dome" (slit sensillum on small elevation) near proximal end of each tarsus; subterminal tarsal setae acuminate, curved near tips.

Measurements (in mm): Male: Body length 2.92. Carapace 0.88 long, posterior breadth 0.81. Chelicera 0.245 long by 0.135 deep; movable finger 0.15 long. Palpal trochanter 0.465 by 0.33; femur 0.88 by 0.32 (not including elevation); tibia 0.76 by 0.31; chela (without pedicel) 1.235 by 0.37; hand (without pedicel) 0.66 by 0.19; movable finger 0.555. Leg I: basifemur 0.215 by 0.16; telofemur 0.43 by 0.14; tibia 0.38 by 0.11; tarsus 0.33 by 0.075. Leg IV: trochanter 0.355 by 0.16; entire femur 0.725 long; basifemur 0.17 by 0.15; telofemur 0.615 by 0.185; tibia 0.555 by 0.11; tarsus 0.37 by 0.065.

Discussion: *Chiridiochernes platypalpus* is the first species of pseudoscorpion known to be modified specifically for life on a vertebrate animal. Representatives of other genera have long been known to live on or in the nests of mammals, such as *Lasiochernes* on moles and *Megachernes* on rats, but none of these shows any striking structural modification to favor the association.

There is no evidence that *C. platypalpus* feeds on the host rat, that is, the chelicerae and other mouth parts are not modified and appear incapable of penetrating the skin of a mammal. On the other hand, the flattened body and long thin legs should allow easy movement and the long, flattened palps seem admirably suited to reaching for prey between the hairs of the host. Rats are notorious for their ectocommensals and parasites and Mr. Jones reports (personal communication) that the rat which yielded the pseudoscorpion also harbored one louse, 20 mites, 25 chiggers, and 21 ocular chiggers. Our species has obviously adapted for the efficient utilization of this rich food source.

The heavy sclerotization of all parts and the tight, boxlike construction of the abdomen are certainly adaptations for protection. They probably serve to prevent desiccation in the rather dry environment on the rat's

skin; and they are doubtless good defense against the scratching claws and biting teeth of the host as it attempts to rid itself of unwanted guests.

The similarities between *Chiridiochernes* and *Pseudochiridium* are very interesting and deserve further consideration. However, because they are probably of greater relevance to the taxonomic position of *Pseudochiridium*, they will be discussed in detail elsewhere. Suffice it to say that a close relationship between the Pseudochiridiidae and the Chernetidae is indicated.